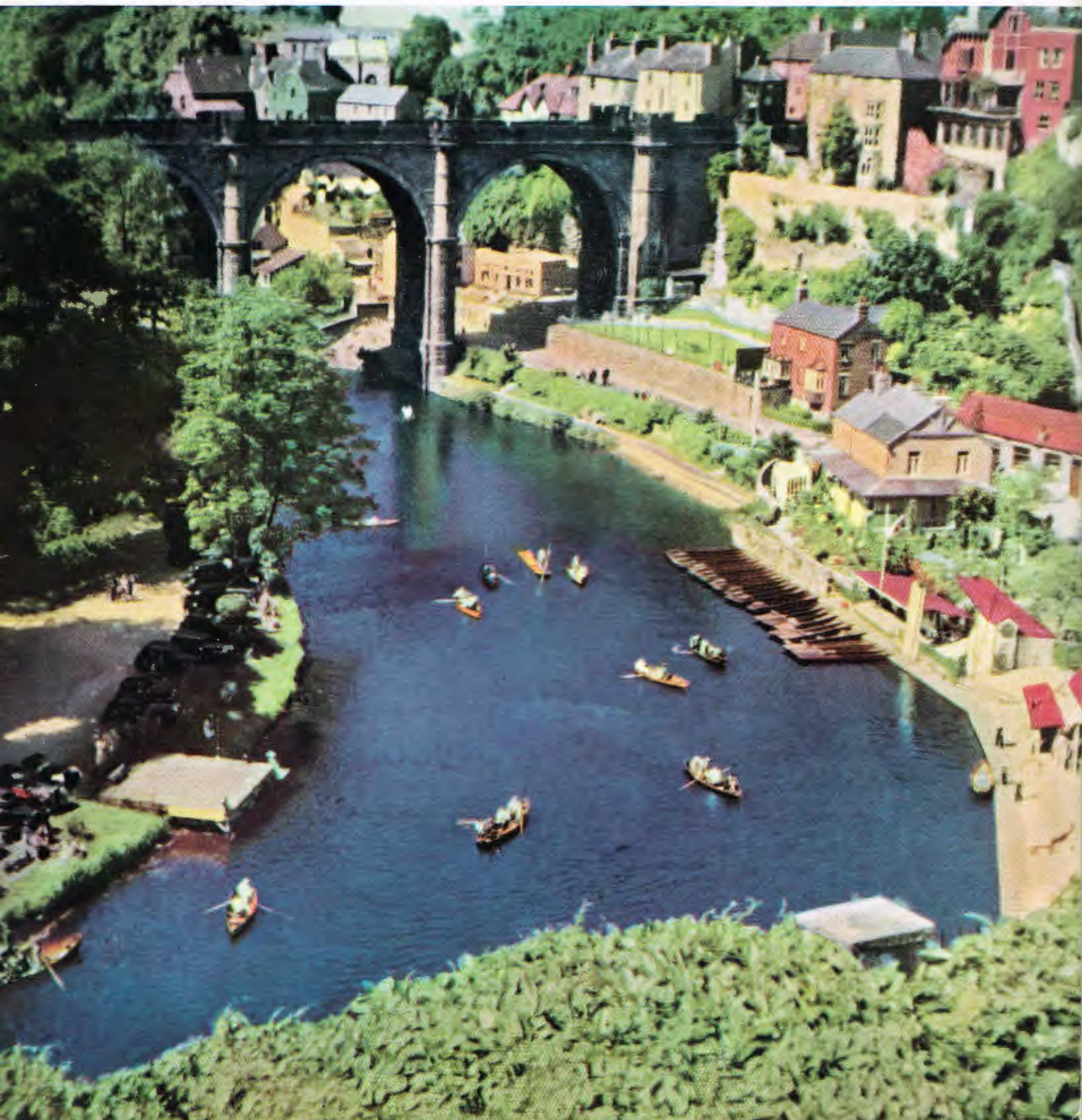




# MAGAZINE

PRICE TWOPENCE

APRIL 1953





The *I.C.I. Magazine* is published for the interest of all who work in I.C.I., and its contents are contributed largely by people in I.C.I. It is edited by Richard Keane and printed at The Kynoch Press, Birmingham, and is published every month by Imperial Chemical Industries Limited, Imperial Chemical House, S.W.1. Telephone: VICToria 4486. The editor is glad to consider articles for publication, and payment will be made for those accepted.

## CONTENTS

The Chemical Engineer, by J. E. Braham . . . . .	98
Information Notes No. 84 . . . . .	101
One Man and His Job—Metal Caster . . . . .	106
A Challenge to Science, by the Editor . . . . .	108
Chrysanthemum Growing, by Lawrence Ashford . . . . .	113
I.C.I. News . . . . .	117
Tags and Ties, by Ronald Farquharson . . . . .	125

FRONT COVER: *A view of the river Nidd at Knaresborough in Yorkshire, by Alex Fulton of Nobel Division. Knaresborough is only a few miles from Harrogate, the future home of 'Terylene' Council.*

## OUR CONTRIBUTORS

LAWRENCE ASHFORD has been with the Leathercloth Division for almost eighteen years. Following seven years' war service, chiefly with the R.E.M.E. (when he worked on radar equipment), he took up gardening as a hobby, and now grows about half an acre of fruit, vegetables and flowers. He is a keen exhibitor and has featured in the prize lists at several local shows.

J. E. BRAHAM became I.C.I. Engineering Controller three years ago. Before that he was chief engineer of Nobel Division, where he was transferred from the position of Billingham chief engineer.

RONALD FARQUHARSON has been I.C.I. Shipping Manager since 1944. His offices are in Liverpool, where he is responsible for shipping to the tune of over six million pounds a year. He has spent over ten years in China, where he worked for I.C.I., and is the author of *Confessions of a China Hand*.

# THE CHEMICAL ENGINEER

## *His Place and Prospects in Industry*

By J. E. Braham (Engineering Controller)

**Do we in industry know what we want of the chemical engineer? This vital question is asked by the I.C.I. Engineering Controller, who makes a plea for clear thinking on the problem so that the universities and industry can shape their training to practical needs.**

CHEMICAL engineering has been defined by the Institution of Chemical Engineers as relating to the design, construction, erection and operation of industrial plants in which matter undergoes a change of state or composition. A logical definition, perhaps, but one so broad that it must be to many people inadequate and misleading.

The terms "mining engineer," "mechanical engineer" and "electrical engineer" were, even when first used, unambiguous; but the term "chemical engineer" is far less definite in its meaning. If it were merely a matter of definition, any lack of precision would be of little importance; but so many issues hang on a clear understanding of the role of a chemical engineer that the subject is one meriting careful thought.

The great progress of chemical research in recent years has led to very heavy demands on engineers to produce the plant and equipment necessary for development on a commercial scale. They have had to extend their knowledge in such fields as heat transfer, fluid flow, matter transfer, absorption and distillation—to name just some of the problems. These engineers have become, quite understandably, known as "chemical engineers."

The greater part of the knowledge required by the chemical engineer is not so much of chemistry, which has been defined as the science that is concerned with the composition of bodies and with the changes of composition they undergo, but rather of physics, which has been defined as the study of the world as a system of submicroscopic particles in wave motion.

In this formative period for the chemical engineering profession an important and far from easy duty devolves on the process industries, particularly those essentially chemical, as well as on the chemical plant manufacturers, who together will be by far the largest employers of chemical engineers. They must assess carefully what qualifications they require in a chemical engineer and guide the universities and technical colleges accordingly. They must also decide the uses to which chemical engineers may be put and with what practical training and experience they should provide them after they enter industry.

In the earlier stages of chemical development the process industries were served principally by mechanical engineers who worked alongside the chemists and physicists—a combination, particularly of the engineer and chemist, which has produced and is still producing excellent results. These mechanical engineers in course of time acquired special knowledge and were, in fact, the first chemical engineers.

There is today some tendency, if not towards replacing, at least to supplementing the engineer/chemist combination by the chemical engineer. Opinions differ widely as to how far this change should go, and some even question whether it is desirable. Nevertheless there is wide acceptance that the chemical engineer can be of real use in industry, and particularly in the translation of a chemical process from the pilot plant stage to commercial production. If chemical engineering training is soundly based, those who follow it should be able to fill many roles and

play their part in research, design and plant operation. They should have an appreciation of economics, and some may well go over to commercial and administrative work, as do other types of technical staff.

On the score of training, opinions are very divided. Some are for a fundamental training on a mechanical sciences basis, others on a chemistry or physics basis, and a third school of thought considers that a chemical engineer should be trained from the outset as a specialist with particular emphasis on the so-called unit processes—distillation, oxidation, hydrogenation and absorption, to mention a few.

The position, then, is that a new class of engineer is evolving—and this at a time when it is realised that the utilisation of scientific knowledge is no less important than the production of fresh knowledge by research. Our Company is engaged in the rapid expansion of its existing plants and in the development of new processes; accordingly we are particularly concerned in the evolution of the chemical engineer. The questions which we and the process industries generally have to answer are: "What types of chemical engineer does industry need, and can the present facilities for training, both from the theoretical and the practical point of view, produce what is required in quantity and quality?"

### *Qualities required*

Because of its wide range of activities our Company is extremely representative of the whole field covered by the chemical process industries as well as of the "services" industries—electricity, gas, coke, etc. This is true not only as regards type of activity but also scale of activity, since the Company comprises production units of very varying size. The Company thus provides a comprehensive background against which to assess the qualities required in a chemical engineer.

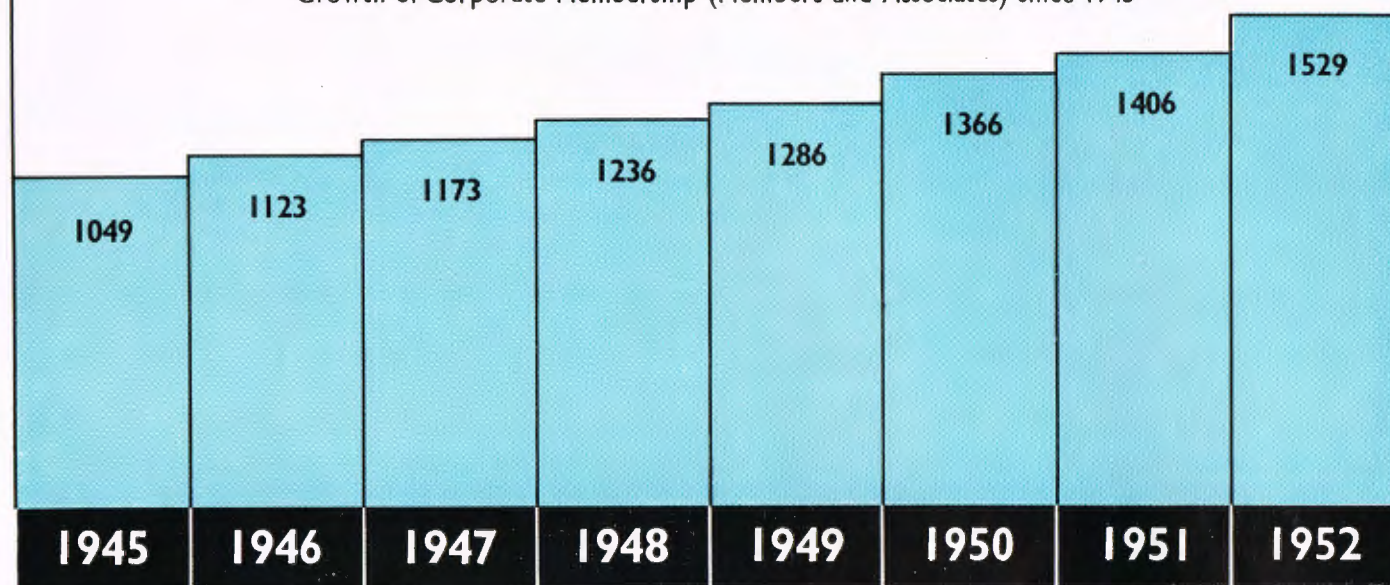
A recent survey of opinion in the Company on the subject of chemical engineers revealed the widespread opinion that the technical training of a chemical engineer would best be based on that of a mechanical engineer, extending normally over a period of three years, followed by training devoted to chemical engineering proper on a post-graduate basis for a period of one or preferably two years. Although there are obvious and very real difficulties in the way, many advocate that the post-graduate chemical engineering training should take place after a few years of practical experience in industry; the value of such an arrangement is too obvious to require emphasis.

The preference expressed for the chemical engineer with a background of mechanical engineering training must not, of course, be taken to mean that there is no place for the chemical engineer with a basic training in



## THE INSTITUTION OF CHEMICAL ENGINEERS

Growth of Corporate Membership (Members and Associates) since 1945



THE RISING OUTPUT OF CHEMICAL ENGINEERS is illustrated by this graph of the membership of the Institution of Chemical Engineers, which has risen by nearly 50% since the war

chemistry or physics. That is far from being the case; such engineers are already employed by the Company and are particularly suited to certain parts of the chemical industry, as for example those concerned with the manufacture of dyestuffs, fibres, paints and explosives.

The chemical engineer trained only on a specialised chemical engineering basis cannot, of course, by virtue of that training, be either a fully qualified chemist or physicist or mechanical engineer. His place in industry is correspondingly of a more specialised nature, which is not to say, however, that there are only a few activities for which he is suitable. More so than the chemical engineer who was originally a chemist or originally a mechanical engineer, he will require a correspondingly greater measure of support from the straight mechanical engineer or the straight chemist.

The volume of present-day knowledge is already so great that none apart from the exceptionally talented can possibly expect to achieve a comprehensive grasp of all that is required of engineers in the process industries. Chemical engineers, however widely they are used, must still be used in conjunction with chemists, physicists, mechanical, electrical and civil engineers, instrument technologists and materials specialists.

The chemical engineer should be a man who can operate over a wide field and whose most frequent role will be to act as an effective link between the chemist and the mechanical engineer. In general he will be employed

as an additional member of a technical team, so broadening and strengthening the whole structure that problems associated with the rapid advance in scientific knowledge, and particularly their practical application, can be dealt with effectively.

However good the technical education provided at a university or elsewhere, this cannot by itself produce a fully qualified chemical engineer: practical training in industry is also essential. This training has often been merely a matter of gaining the experience incidental to an engineer's work and has been too specialised and narrow: its effectiveness has in consequence been largely a matter of chance.

If the chemical industry is to have a fully adequate engineering staff to handle the growing complications of the problems which face it, careful attention must be given to the practical training of the chemical engineer. This may be provided by organised movement to give him as far as possible some experience in research, design, development and operation. In appropriate cases construction and maintenance may be included.

There is still another side to the education of a technologist, be he chemical engineer, chemist, physicist or mechanical engineer. No man can know all the answers to the questions which can arise in his selected branch of technology, but he should know where to find those answers and have the fundamental training to understand them and to use them correctly.

## Information Notes

### LIFE IN PUSAN

By I. H. Kendall (I.C.I. (China) Ltd.)

*Pusan is the gateway to Korea. Through this port passes a ceaseless flow of men and material to sustain the Korean war. Here is an account of what life is like in this eastern city, crippled with inflation and swollen by a million refugees.*

PUSAN is the centre of Korean business today. But if you visualise Pusan as a modern city with large buildings, fine streets, modern traffic and all the trimmings that go to make a capital city, then you make the same mistake as I did.

Pusan before the Korean war was a port of 500,000 people. Now it is a refugee capital with a population of some 1,500,000. Squatters' huts, built of any available material, cram every spare nook and cranny of the "city" and ripple outwards to cover the surrounding hills.

Few buildings are of more than two storeys, and practically all of these are very old and dilapidated. All the main buildings have been requisitioned for one purpose or another, either American Army, UNACK, UNKRA, Government offices or hospitals. The streets are in an appalling state of disrepair. Where paving exists it is pitted with deep pot-holes. Where it does not, a thick cloud of dust hangs in the autumn air. There are trams and buses on the main road, but they, like the rest of the city, are very old and shabby. The predominant transport is the army jeep, with army lorries and trucks a close second. Taxis are available, but are the most ramshackle of any ever seen.

A drive in a taxi is an experience not to be missed, the issue being at all times in doubt. It would not be true to say that this traffic dashes around the city. The streets are too bad and too narrow for this, but a journey at a speed of 20 m.p.h. is a hair-raising experience. All the streets are thronged with pedestrians, and the question of who has right of way is left in doubt until the very last minute. To add to the joys of mechanised transport, a game exists among all ages of the local population to see who can climb on to the back of any available car first and stay on longest without dropping or being bounced off.

Stalls line all the streets selling books, cigarettes and toilet necessities. These goods are usually ex-PX (NAAFI) supplies which are sold at fantastically high prices (cigarettes being an exception and comparatively cheap). To add to the general confusion, the Korean boy has proved himself an extremely able and persistent shoe-shine boy.

When one enters the buildings the same conditions exist. In government offices every available inch of space is taken up with tables, desks and chairs, all the furniture being in exactly the same condition as the buildings themselves. An effort has been made to leave a narrow corridor for visitors, but any trip through a government office is in the nature of an obstacle race.

The whole atmosphere is one of dust and crowds. There is practically no office equipment, typewriters, etc., being conspicuous by their absence, every bit of work being done in longhand. To add to the confusion, nearly all records were lost or destroyed during the two evacuations of Seoul.

There is one modern hotel, the Mijin, and this is a very small one, having only about ten bedrooms. Situated in the middle of the city, it is as a result very noisy and dusty, and moreover extremely expensive, a small room costing the equivalent of £5 per day excluding food. However, there is an annexe to this hotel, the Sung-do (Pine Island) Villa, outside the city, and I chose to live there. It is a Korean-style hotel with very small rooms and no modern conveniences—not even a bath.

To remove the thick coat of dust which one wears on returning to the hotel in the evening one bathes in two basins of hot water before an uncurtained window. However, the Sung-do is clean and quiet and, as its name indicates, overlooks a pine island near inshore. It has the added attraction of being much cheaper—about £1 10s. per day for a room. Food is very expensive and not very good in quality, breakfast costing about 10s., lunch 15s. and dinner 25s.

The population of Pusan is largely composed of refugees. Many of them lost their property and houses in Seoul during the war, and housing in Pusan is extremely difficult and expensive, whole families living, eating and sleeping in one small room. There are, of course, a tremendous number of military installations, mostly American, and G.I.s are everywhere, their payscrip, M.P.C. (Military Pay Certificate) being known as G.I. money by the local Koreans.





Main street of Pusan



Market stalls, frequented by European and Asiatic alike

The climate is ideal in the autumn. The skies are clear and there is just a hint of a bite in the air in the early mornings which is very invigorating, but it gets hot during the middle of the day. I am told that during the rainy season, which starts about May and ends about September, the roads are a morass.

Pusan has a fine harbour which will take 10,000-ton ships, but most of the quays are reserved for military transports and supply vessels. Two-thirds of the total shipping tonnage entering Korea today does so through Pusan, the three other ports—Inchon, Yosu and Mokpo—accounting for practically all the remainder. Most merchant ships have to discharge

their cargo in mid-stream into lighters, and this slows turn-round. Pusan therefore is the hub from which supplies are fed to the rest of Korea by road, railway, coastal junks and motor vessels. The railroad is taxed to its limits, but seems to operate efficiently under United States army control.

In contrast Seoul, to which I paid a fleeting visit on a Sunday, is a comparative haven of peace. Seoul must have been a fine city before it was overtaken by the war. It was very severely knocked about. Much of the rubble has now been cleared away, but there are whole blocks missing altogether, and a fair proportion of the remaining buildings have been damaged.

## INSECTS AND SPIDERS—ROAST OR RAW?

By W. S. Bristowe (Head of Central Staff Department)

*Food rationing has not yet brought us to the point of eating insects. But there are countries in the Far East where roast spider is a recognised delicacy on the menu. Here Mr. W. S. Bristowe, who is an authority on spiders and author of The Comity of Spiders, tells how no harm came to him when spider-eating.*

WHEN dining with friends a few years ago I was invited to play a card game and found to my embarrassment that, in changing my clothes, I had left all my money at home. Just at that moment I noticed a small house spider running across the carpet, so I seized it and offered to eat it alive in return for monetary contributions. It was obviously a lucky spider, because this small initial capital was increased by 1000% by the end of the evening's play!

Although I had never eaten English spiders before I was confident it could do me no harm because they used to be prescribed by doctors in England as a cure for malaria. Indeed, its usage for this purpose was not finally abandoned until towards the close of the nineteenth century, when malaria itself was stamped out. To quote just one out of dozens of references: "Swallowing a spider gently bruised and wrapped up in a raisin or spread upon bread and butter" was recommended by Dr.

Watson, who claimed in 1760 to have found spiders efficacious in more than sixty cases where bark (cinchona) had failed on prisoners suffering from malaria in the Isle of Man.

Fashions change, and the idea of eating a spider or a beetle grub or a caterpillar is nauseating to most people today. So it was to me until I visited Siam in 1931.

There I learned that the peasants enjoyed eating many kinds of insect. Indeed, His Serene Highness Prince Sithiporn told me that his cousin, King Rama VI, had been particularly fond of the caterpillar of the cossid coffee-boring moth, which was roasted and eaten with rice and salt. Prince Sithiporn invited me to compare the idea of eating this fresh, clean-feeding caterpillar with that of such scavengers as lobsters or shrimps. He expressed disgust at our consumption of high game and decaying cheese. Surely his argument was not unreasonable?

The more I thought about it, the more I realised how greatly we are all influenced by tradition and prejudice and how far we are from allowing our sense of taste to decide what we will eat with pleasure.

Religious tabus, for instance, are widespread, and Japan might now be an important dairying country but for the introduction of Buddhism at a time when dairying seemed likely. The common belief among primitive tribes that the mental and physical qualities of an animal are transferred to those who eat them has sometimes led to the abandonment for food purposes of succulent slow-moving or cowardly animals.

Then again, the appearance of food is so important to us that a chef has to be an artist as well as a cook in order to stimulate our appetites, while conservatism or fear often prevents our experimenting with unaccustomed foods.

Having at least reduced my own initial prejudice against some of the Siamese items of food, I started by trying and disliking the somewhat musty flavour of curried lizard. My first insect was a locust, which I toasted and ate like a shrimp in the manner recommended. I chose this for my initiation because I knew that locusts were widely eaten in the East from biblical times up to the present. I was encouraged on finding that the flavour was neither strong nor unpleasant, though difficult like all flavours to describe.

After this I went hunting for insect foods with experienced local collectors, and ate whatever they recommended. Cicadas are chiefly collected in the southern forest clearings, and my impression of the few boiled specimens available was of eating vegetable rather than animal food. In the right areas they can, however, be collected with amusing skill and eaten in bulk.

When darkness falls a fire is lighted and cicada hunters arrange themselves round it. Then they rapidly clap pieces of bamboo together and down fly quantities of Cicadas. The inference is that these vibrations are similar to those of the male's whistling love-call and that it is the poor misguided females which end up in the cooking pot instead of finding a mate!

I was impressed with the knowledge and skill of the collectors, and high prices are paid in the village or town bazaars for some of the insects. There are no domesticated bees, but quite a lot of wild honey is marketed, while the grubs and even the bees' abdomens may also be eaten. The collectors differentiate clearly between those kinds of bees whose bodies are nice and those whose bodies and whose grubs have a sour, unpleasant flavour.

The taking of some nests is fraught with danger, because three or four stings are said to bring on fever. Some men, however, are said to be immune, but in spite of this quite a ritual is exerted before the collecting starts.

Incantations and prayers are followed by a sprinkling of



Qualities transferred . . .

sacred waters over the collectors before they set off in darkness, accompanied by friends, to investigate trees with several nests of bees hanging in their branches. The followers bring a number of bamboo sticks, each with a sharpened end hardened in fire. One by one these are hammered into the trunk, and if any of them need more than three blows the omens are unpropitious and no further attempts are made that night. If, however, the test is satisfactory a collector is hauled up by means of a rope pulley. He then lights a big wad of cotton-wool and waves it round the nests. Out swarm the bees, he drops the flaming wad and they follow it to the ground.

Now is his opportunity to cut down the nests, and a skilful worker may collect 200 or 300 nests in one night. A high price is gained for the wax. Both the grubs and the honey are eaten. The grubs are fried or eaten in curry. A favourite dish is as follows: In coconut milk put onion, pepper, takrie (a lemon grass) and other aromatic leaves. Wrap the mixture in linen, steam, and then add rice.

One of the delicacies in Siam is a three-inch water bug with a strong flavour not unlike that of gorgonzola cheese. It is used in curries and sauces. In 1931 these bugs fetched the equivalent of one to four pennies each, according to the season, and they reached the tables of peasants and princes.

Peasants from all districts of Siam eat two kinds of spider. I confess that I left spiders until last. The first is a giant orb-weaving spider. Sometimes they bite off the abdomen of the living spider and eat it raw, but I preferred to have mine cooked. They are roasted and dipped in salt. Only the abdomen is eaten, and this has a not unpleasant flavour which reminded me of raw potato and lettuce or raw cabbage.



... poor misguided females

The second is a fine blue-legged Mygalomorph spider which has a body two and a half inches in length and weighs 1½ oz. In an hour the collector whom I accompanied captured six from holes in the ground (i.e. half a pound). After removing the jaws these spiders were toasted on a skewer—a process which removes the hair—and eaten whole with salt or sliced up with chillies. The taste reminded me of the marrow of chicken bones. When offered in the village market at Hua Hin each spider fetched about 3d. (2 satangs) in 1931. The same spider, or a close relation is eaten everywhere it is found in Siam, Burma, Annam and Cambodia.

Investigations about the diet of primitive man in other parts of the world show that almost invariably some kinds of insects are eaten. It seems that the custom of eating insects normally waned as improved agriculture provided greater abundance of food and as trade provided greater choice. Incidentally, insects have quite a high protein content. An analysis of three specimens of the blue-legged spider carried out for me at the Government Laboratory in Bangkok gave a protein content of 63.4% and a fat content of 9.8%.



# THE IDEAL ANAESTHETIC

By D. P. Allen (Pharmaceuticals Division)

*The search for an ideal anaesthetic is relentlessly pursued in the laboratories. Of all the modern anaesthetics none is perfect—each has its virtues and its failings; often the best results are obtained by using more than one at a time. Here is a brief account of the chief drugs at the service of the anaesthetist today.*

THE perfect anaesthetic agent has yet to be produced. It is one that nullifies pain, secures complete relaxation, and yet does not interfere in any way with body functions. The drug should take effect quickly, be without irritation or unpleasant smell, and it should allow rapid recovery without discomfort. It should not be explosive when mixed with air, and there must be a wide margin of safety between the effective and the dangerous dose. In addition, it should be stable when stored and inexpensive.

Up to the present, nitrous oxide is in many ways nearest the ideal anaesthetic agent, but since its potency is too low for most surgery it is frequently used in combination with other agents.

The adoption of volatile substances as inhalation anaesthetics was actually more or less a matter of accident. But experience soon revealed great advantages in this method. As the lungs are specially adapted for rapid absorption and elimination of gases, the physiological action can be produced rapidly, the amount given is under continuous control and the anaesthetic is rapidly eliminated when administration stops.

Henry Hill Hickman, a young English surgeon, was in 1824 probably the first to advocate unequivocally the principle of producing surgical anaesthesia by inhalation. Other routes of administration can be used, however, and these include the intravenous route, oral, rectal, and (less common) subcutaneous and intramuscular.

The trend today is away from administering a single anaesthetic agent, and rather to employ the technique known as "balanced" anaesthesia, using two or more agents which act at different levels of the nervous system.

In studying the methods now used, the first thing that strikes one is the increased complication and mechanisation of the anaesthetist's work. Although this change cannot be considered in itself desirable, the advantages gained far outweigh the essential defects and enable a near approach to be made to the ideal.

Of the original "big three" anaesthetics, nitrous oxide and ether are still in constant use, but chloroform has been largely displaced (except for special cases) on account of its toxicity.

Of the newer anaesthetics cyclopropane is one of the most potent of anaesthetic gases and is now widely popular, especially for chest and abdominal surgery. With skilled adminis-

tration it comes close to the surgeon's ideal, although its inflammability is its main disadvantage. The entire needs of this country and also of many overseas markets are met by the production of the I.C.I. Grangemouth works.

Yet another important inhalation anaesthetic is 'Trilene.' This is trichloroethylene, purified and stabilised specially for anaesthetic purposes. It is produced by the General Chemicals Division at Runcorn. Its development as an anaesthetic and analgesic in this country was the outcome of an investigation initiated at the beginning of the war to find an anaesthetic which was less toxic than chloroform and which was not dangerously inflammable like ether. Although 'Trilene' has not replaced these two agents it has nevertheless achieved an established place in anaesthesia, while as an analgesic it has been used with outstanding success in obstetrics for relieving pain during labour.

It is noteworthy that although this specialised use for trichloroethylene had been investigated earlier in the U.S.A. its potentialities were not recognised, as some authorities there believed wrongly that it had toxic properties. Now, as a result of the pioneer work done with it in Britain, trichloroethylene is coming into general use in the country which once condemned it.

The popularity of 'Trilene' is still increasing enormously, and the quantity distributed annually by I.C.(P) now amounts to over 120,000 lb.

In recent years it has come to be recognised that a number of important physiological advantages are gained by producing unconsciousness before giving an inhalation anaesthetic. One of the newest of these drugs is 'Kemithal,' a short-acting intra-

venous anaesthetic agent which was evolved at the I.C.I. Biological Laboratories at Blackley. It possesses a number of noteworthy advantages over similar agents.

Another procedure used today for the relief of pain is to inject a drug which will cause sensation to be blocked at various parts of the body, without directly affecting the brain as is the case with the general anaesthetics. There are various methods of doing this, and the anaesthesia achieved is known as local, regional, caudal or spinal, as the case may be. A number of drugs are available for this type of anaesthesia and the most popular is probably procaine, now widely used by dentists instead of cocaine.



*Less toxic than chloroform*



*Curare . . . well-known arrow poison*

One of the most outstanding developments in present-day anaesthesia has been the introduction of drugs such as d-tubocurarine chloride, a pure component of crude curare, the well-known arrow poison of South America, which produces the desired amount of muscular relaxation required in many surgical procedures. Another new synthetic substance which is coming into use is pethidine. This possesses sedative properties similar to morphine. The great value of these drugs is that they allow the anaesthetist to achieve easily any degree of

muscular relaxation with minimum quantities of anaesthetic, thereby increasing the efficiency and safety of his technique.

With the wide choice of anaesthetic and ancillary agents now available, and the various sequences used in administering them, the scope of the anaesthetists' work has increased enormously. These developments enable surgical operations to be performed which would not have been possible at the beginning of this century, and they inspire the confidence of both the surgeon and patient.

## FATHER OF MODERN CHEMISTRY

*Antoine Lavoisier was guillotined by the French revolution in 1794. But not before his work had (to quote the Encyclopaedia Britannica) "established the foundations upon which the modern science reposes." Antoine Lavoisier, Scientist, Economist, Social Reformer, by Douglas McKie (Constable, 30s.), is here reviewed by Dr. F. A. Freeth, F.R.S.*

THIS book is of great interest to very many people in I.C.I. Dr. McKie, who is a real authority on the subject and the period, mixes a little blood with his ink which lifts the book into a small and select class. My review is particularly directed towards making those who think it might be dull or possibly above their heads summon up sufficient courage to have a look at it.

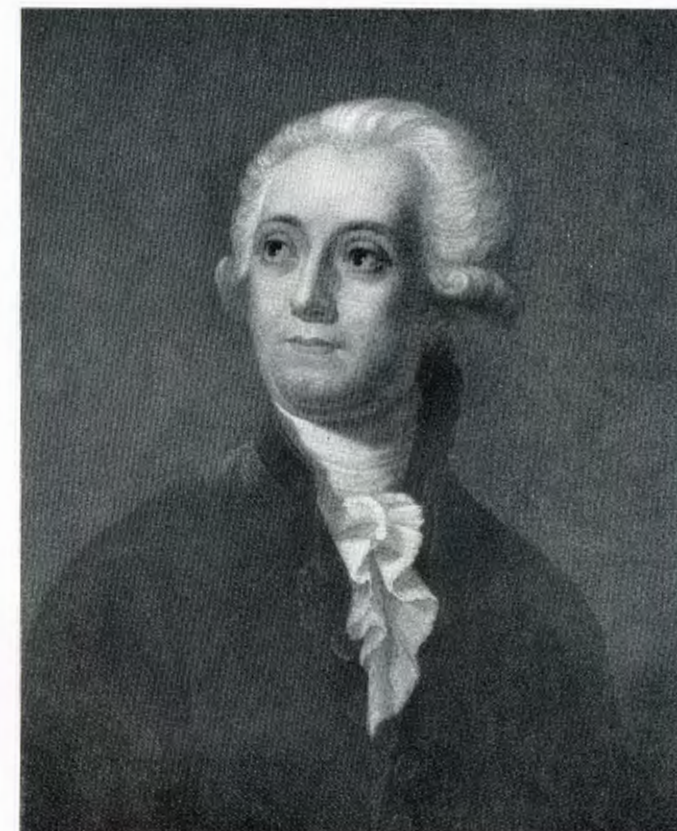
Do not make the mistake of ploughing through it, especially if you do not know any chemistry. The chemical difficulties in this book are slight, as nearly always happens at the beginning of any science. Before you begin to read it, skip up and down the book. You will note with interest and possibly astonishment that the first experimental farm in the history of agriculture was run by Lavoisier.

It was part of Lavoisier's duty to make reports to the Academy on a number of subjects. On 5th June, 1783, for example, the brothers Mongolfier sent up a hot-air balloon which travelled for a considerable distance. The government regarded this as so important that they asked Lavoisier to make them a report on the possibilities. He began his report with

the history of flight and superintended further experiments. In October 1783 Pilatre de Rozier made the first human ascent in a captive balloon. A little later the first real human flight was made by de Villette and the Marquis d'Arlandes. They were seventeen minutes in the air and travelled nearly five miles. It is to be presumed that they were somewhat scared and happy when they landed. Lavoisier was behind all this.

Lavoisier is the father of modern chemistry (the discoveries of Black, Priestley and Lavoisier are well and carefully co-ordinated and balanced by Dr. McKie). Anyone whose recollection of this subject is based on the usually accepted information will find his mind refreshingly cleared. Lavoisier's story is, of course, a tragedy. There is a particularly good clear account of Lavoisier's trial and subsequent execution. He was little over fifty years of age.

To those people in the Company who have a reasonable knowledge of chemistry—and there must be thousands of them—this book will be a delight. Your reviewer would like to suggest that every Divisional library should contain a copy of this work.



ANTOINE LAVOISIER (1743-94)



# METAL CASTER

IT was a bitter winter day when I went to see Frank Barnhurst at work, and the warm air of the casting shop greeted me pleasantly. The enormous rectangular building, though high and well lighted, was plentifully dusted with fine soot and hazy with thinning smoke; from the double line of great hooded furnaces shot an occasional burst of flame, but for the most part the massive steel framework glowered blackly. No place, obviously, for a man who resented grime and sweat in working hours.

Frank Barnhurst, however, was quite unawed by his somewhat sombre environment. He told me he had been casting for all but two of his twenty-six years with I.C.I. and had absolutely no complaints; given a fresh chance, he would choose the same job. Then, without more ado, he introduced me to his furnace.

Casually mentioning that it held  $2\frac{1}{2}$  tons of molten metal at a time, he showed me first where the furnace was fed—"charged" is the technical word for this. Trucks holding the metal are hauled by a crane on to an iron-plated gallery and tilted; the truck discharges its load directly into a circular mouth in the top of the furnace—a vast but simply constructed melting pot, heated by electricity. Returning to floor level, I was shown the equipment which handles the second stage of the casting process—pouring. Immediately in front of the furnace a deep pit houses the moulds into which the molten metal is poured. Frank explained that by simply turning a handle he could tilt the furnace so that the metal would run through a spout straight into a runner box in the open end of the mould.

Frank Barnhurst's job is to cast half-ton slabs of brass for the strip rolling mills of Kynoch Works. Every day, in the course of eight hours' work, he produces fourteen of these, so his weekly output amounts to no less than 35 tons of cast brass.

To do this he needs two indispensable allies—considerable mechanical help in handling his material and equipment, and a regular and systematic drill to ensure that no single item in the production routine is forgotten.

Casting is a non-stop operation, so when Frank takes over at the beginning of a shift he finds the furnace already partly charged. Until the metal is ready for pouring he busies himself getting the moulds ready, carefully brushing off all soot and dust and painting the inside surfaces with a shining oil-and-charcoal mixture to eliminate sticking. He also sees to it that

the row of small holes in the runner box are clean and free from obstructions—an important point, this, since foreign bodies could interrupt the smooth flow and cause faults in the finished casting. The door plates of the book-shaped moulds—jackets which contain cooling water—are then swung into position and secured with massive steel bolts.

This work cannot, however, be carried through without interruption, for meantime the caster must keep a watchful eye on the contents of the furnace. The remainder of the virgin and scrap metal must be added little by little, the temperature of the seething molten mass carefully controlled, the floating scum of dross and impurities skimmed off the surface. After about an hour the charge is ready for pouring, and at this point the great furnace slowly tips forward, its "front door" is opened, and—almost reluctantly, it seems—a sluggish trickle creeps down a trough into the waiting mould.

Then comes the transformation scene. The trickle broadens to a brilliant steady flow of almost white-hot metal; bursts of peacock-blue flame and intense green smoke escape for a moment the suck of the enveloping hood; under the caster's observant eye half a ton of liquid brass disappears into safe keeping; and in only a minute or so it is time to switch over to the second empty mould.

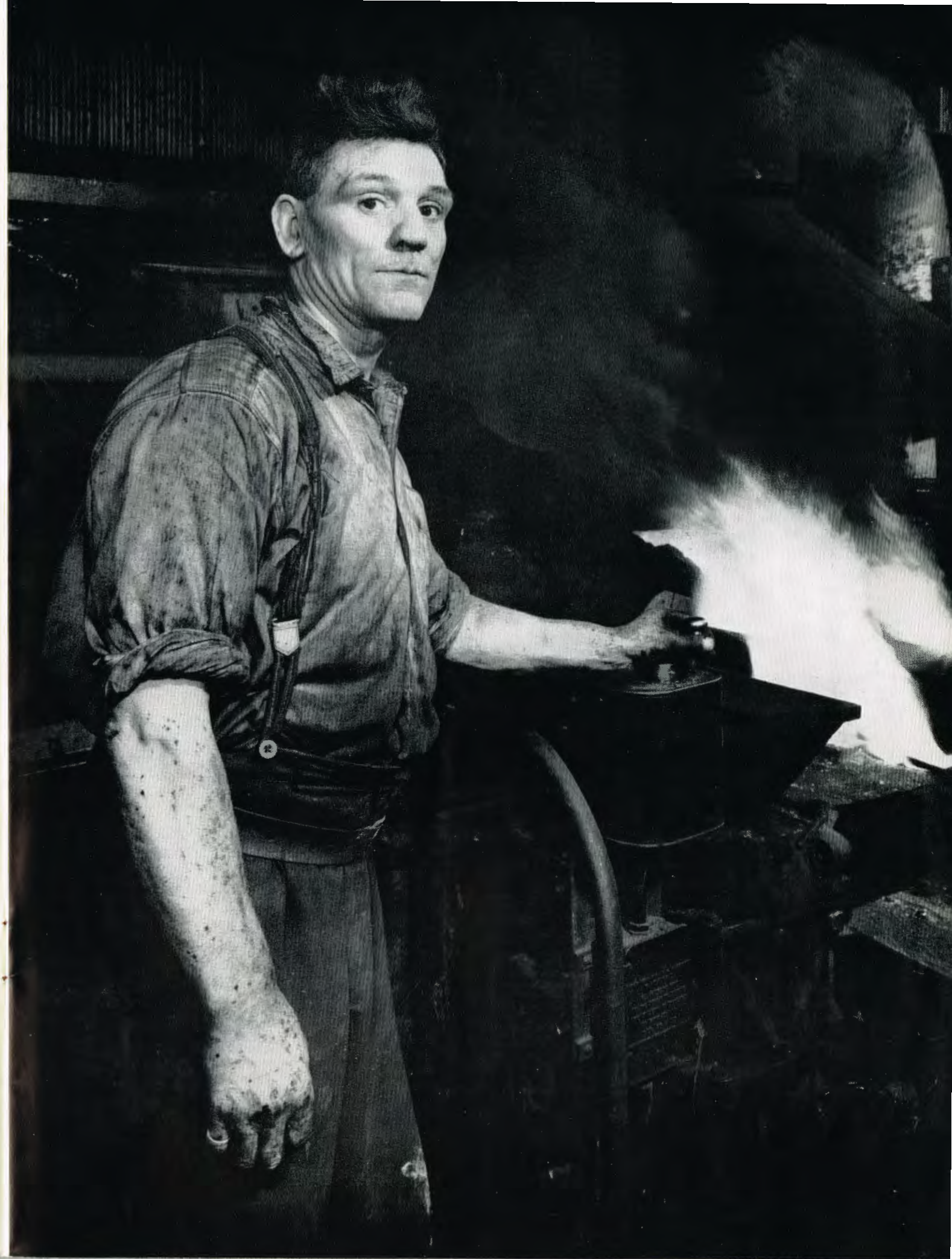
Even while pouring is going on the caster has no time to stand idly by, for he has two small but important incidentals to attend to. First he must extract a sample of the charge to go to the laboratory for quality analysis; second—since cast metal, like the housewife's sponge cake, tends to sink slightly in the centre as it cools—he must correct this by topping up each casting with a last few carefully controlled drops.

While the hot metal cools and solidifies, the caster is busy cleaning out and restocking the furnace: neat timing ensures that this is completed just as the castings are ready to be lifted by crane out of the moulds. The half-ton slabs now pass from the caster's hands and, trimmed of their rough edges, they are taken to the rolling mill for the next stage of fabrication.

I felt that it was not surprising that Frank Barnhurst and his fellow casters find this work satisfying. The demands it makes on skill and judgment prevent its ever becoming monotonous, and there is pride in carrying through single-handed an exacting job which does not admit of carelessness or mistakes. A frightening responsibility? Apparently not. Just a job for a man.

D.B.T.

Frank Barnhurst





# A CHALLENGE TO SCIENCE

## *I.C.I. research workers combat food losses from insects*

By the Editor

Since 1936 over 10,000 new chemicals—products of research in the Divisions—have been tested out at the Hawthorndale laboratories for protection of plants and crops against insects. Among the discoveries of Hawthorndale is the now world-famous insecticide BHC. Here is a glimpse of the inside story of this remarkable work.

CONSIDERING the importance of the discoveries made there, the Hawthorndale laboratories are curiously little known by the world at large. Indeed, to many people the name Hawthorndale carries with it sporting rather than scientific associations. On the slopes of these Berkshire hills overlooking the Thames valley near Maidenhead a famous point-to-point used to be held, and during the war this course acquired new popularity as a centre of pony racing.

Today the racecourse is defunct and the stands lie sadly derelict. But a new claim to fame has come to Hawthorndale. In a typical nineteenth-century red-brick villa on these hills a group of scientists—backroom boys—have made discoveries the importance of which for the production of food it is difficult to exaggerate. The fruits of these discoveries are blessed by farmers the world over.

The history of Hawthorndale goes back to 1936. In that year I.C.I. decided that the red-brick villa standing a few hundred yards from the Jealott's Hill Research Station should cease to be a clubhouse and should be turned into laboratories. The allotted task was to test for insecticidal and fungicidal properties the many new chemicals being made in the research laboratories of the Divisions for one purpose or another. Was there not a chance that use could be made of these chemicals for the control of the damage done to crops and plants by insects and fungi?

This work naturally began in a small way. The total number employed, secretaries and all, was to start with no more than a dozen, and this small team was scarcely getting into its stride when the war came and numbers were reduced even further.

Then came one of those astonishing pieces of good fortune without which no research work would ever be successful. Just when the activity of the Hawthorndale workers was at its lowest ebb—at any rate measured in terms of numbers—there came into the laboratories the chemical BHC, now of world-wide fame. With the discovery of its marvellous properties for killing insects without damaging the plant the reputation of the new laboratories was established.

Today Hawthorndale boasts modern and beautifully equipped laboratories and a new wing. About sixty people in all work there. But even with the additional building there is not an inch of space to spare. The basement has been enlarged until it now affords almost the same floor space as the rooms above. Down in the basement are bred the thousands of insects—from the common housefly to the locust—upon which the research workers depend for the tests of the new chemicals.

Originally the testing of the chemicals was a fairly haphazard affair, but today a technique of screening has been evolved which enables Hawthorndale to deal easily with an intake of roughly forty new chemicals a week. In all nearly

2000 chemicals are tested in the course of a year, and reports on over 10,000 are available in the files.

Just what is the procedure under which the laboratories work? The chemicals arrive from the Division in batches, usually in minute quantities—just a few grams in a glass-stoppered bottle. And with them come their Divisional case histories. Each chemical as it arrives is then given a Hawthorndale serial number, and it is known there by that number until the end of its days.

The work of screening is mainly divided between three units—the entomological or insect unit under Dr. Hopf; the mycological or fungus unit under Mr. Charlton; and a unit under Mr. Jameson, who is working principally on the problem of the potato eelworm menace.

Each unit adopts roughly the same technique. The first job is to discover whether or not the chemical under trial has the power to kill at all. For this purpose a simple routine test is needed, and right away at this stage some 90% of the chemicals are eliminated as quite harmless to insect life. In the entomological section, for instance, the test is to try out a thin dilution of the chemical against the larvae of the mosquito. Unless the larvae are destroyed, then the chemical concerned is, by and large, of no further interest for Hawthorndale. This is known as stage one.

For the 10% that survive this test the next stage will be an

evaluation of insecticidal properties against actual insects, the standard of measurement being the effectiveness of a known insecticide. Dr. Hopf has five principal candidates for this particular lethal work. These are the locust, the housefly, the caterpillar, the grain weevil and the flour mite.

The insects concerned are brought up from the basement, where the insect farm is, and introduced to the laboratory for the testing of the new chemical. The chemical is applied by means of a spray, since by this means both the insect and its food can be covered. And here there is an unknown element of danger, since chemicals that kill the mosquito larvae may perhaps also be toxic to human beings.

Wearing a gas mask, Dr. Hopf enters a special chamber and there sprays the insects. A count is then taken of the damage done, and depending upon this count the chemical is passed on for further testing. At this second-stage test about half the chemicals tried out normally fail, and thus Dr. Hopf can expect to be left with about 5% of his original screening for further evaluation.

This 5% now becomes known as the "short-listed chemicals." They are the ones in whom research begins to take an active interest. Among them may possibly be a candidate to be groomed for stardom. For these a third and more extensive testing stage lies ahead. The short-listed chemicals have to prove themselves able to do better than the existing



LEADERS OF THE HAWTHORNDALE TEAM

discuss a problem. Left to right: Mr. I. W. C. McCallen (mycologist), Mr. J. F. Newman (chief entomologist), Dr. C. C. Tander, Mr. J. N. Turner (mycologist), Mr. E. J. McNaughton (librarian), Mr. R. V. Tipler (chief mycologist), Dr. H. S. Hopf (entomologist).





B. E. MANSBRIDGE  
*prepares to examine eelworms under the microscope*



MRS. B. E. MANSBRIDGE  
*handles broad bean plants infested with red spider*



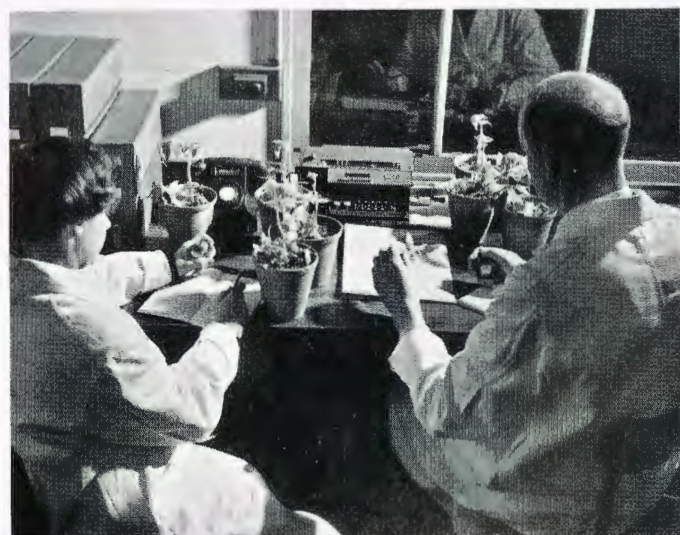
H. S. HOPF  
*notes results of chemicals sprayed against aphids on beans*



J. K. LONGHURST, R. COTTERELL AND MISS GOODCHILD  
*examine oat seedlings for lesions by leaf stripe*



J. L. CHARLTON  
*examines growth of mould on agar jelly*



MISS M. RANCE AND J. A. W. TURNER  
*count lesions on tomato plants from early blight*



FIELD TESTS IN UGANDA. Mr. J. M. Pottier and Mr. R. V. Tipler are here seen examining a cotton crop grown from seed treated with chemicals for protection against black arm disease.



agents of insect control. At the moment there are in the entomological field two specific targets for this third test. They are control of the red spider and the control of the aphid.

Both these insects constitute a problem with which science has hitherto grappled without complete success. The menace of the red spider is now much more acute than it was a few years ago. The existing sprays applied to fruit trees and tomatoes, and in particular BHC and DDT, leave the red spider untouched. With the destruction of other insects that used to prey upon the red spider this insect has been left free to multiply and increase, until today it does ruinous destruction to fruit. Control of the red spider is an urgent challenge for Hawthorndale.

### Systemic Insecticides

Second only to the red spider is the menace of the aphid. This insect is difficult to attack, since it takes cover under the tip of a leaf which curls over and thus gives protection against chemical spray. An attempt is therefore being made to control the aphid by introducing into the sap stream of the plant a chemical which while harmless to the plant will destroy the aphid that feeds on it. This is the approach of what is known as the systemic insecticide.

In both these fields Hawthorndale has some promising candidates; but particularly in the control of the red spider, where a chemical which for the purpose of this article we will call R1234, is showing great promise.

R1234 came into the Hawthorndale laboratories as recently as the spring of last year. It went through the routine tests of stages one and two in the ordinary way and in a matter of a few weeks emerged on the short list. There was nothing very unusual in this, since most of the short-listed chemicals are doomed to failure. If one or two emerge successfully from stage three in the course of twelve months' work, Dr. Hopf and his colleagues are well pleased with their research. But when the results of R1234 on the red spider test were known at Hawthorndale, considerable excitement prevailed. Were they or were they not on the verge of a new discovery?

It was decided that the work of field trials—stage four—should start immediately. This field trial stage is the last of the tests in which chemicals are put through their paces, and, as its name implies, it is conducted in the field on actual fruit farms where the particular pest concerned is rampant.

A party of experts will leave Hawthorndale with the chemical and the necessary spraying equipment and will proceed by arrangement to the infested orchard. There the chemical concerned is tried out in actual working conditions for evaluation of the control it will give in practice, as distinct from control under laboratory conditions. Hawthorndale has the confidence of the horticultural world when it comes to conducting these tests, since laboratory work has made it certain that no damage can be done to trees or crops by these tests even if the insects may escape unharmed.

At the moment all that can be said is that R1234 emerged successful from its first field trials last summer, and high hopes are held for the future.

This brief story of the work of the entomological section is typical of a similar screening system in the mycological or

fungus section. There Mr. Charlton's preliminary weeding-out test is carried out against various fungi, including one of the apple scab type. If the chemical under trial proves lethal at this stage, then the next test is against actual spores growing on a plant, for example against rust on the broad bean. The chemical is sprayed on to these plants in the glasshouse and its effects are measured. This is stage two.

Stage three will be tests of chemicals for the particular targets on which Mr. Charlton is working. One of the main targets today is control of potato blight, and in this work more than one chemical has been taken as far as the field trial stage and tried out even as far away as the West of Ireland, where potato blight is rampant under moist, humid conditions.

In the eelworm section Mr. Jameson, too, has some promising candidates coming along. He tests his chemicals first against the vinegar eelworm, which is a distant relation of the potato eelworm whose destruction is the primary target.

If a chemical negotiates this comparatively easy fence successfully, then it will next be tried out on actual potato eelworms imported into the glasshouse in infested soil taken from areas where eelworm is rife. If successful under glasshouse conditions, the chemical will finally be tried out in the field, where snags may be met with that were not apparent under glasshouse conditions. For instance, methods of application may be necessary which will be too costly or too laborious for the farmer. If this should be the case, then the chemical concerned will not have a practical commercial value.

### Dark Horses

Examples of promising lines of research now being actively pursued at Hawthorndale could be multiplied. Particularly promising work, for instance, is being done on the scale insect, which is such a serious menace to citrus fruits. There are several dark horses in the Hawthorndale stables. Before very long more than one of these may turn out a winner.

Thanks to Hawthorndale, for the first time in history farmers now have at their disposal an efficient means of combating diseases and pests which used to cause millions of pounds' worth of damage to crops every year. Root crops such as kale and turnips used to be at the mercy of the flea beetle, against which the pre-war treatment of derris powder was but a feeble deterrent. Today Plant Protection flea-beetle dust—based on BHC—is a complete answer to this menace, and no farmer who takes the right precautions need ever be forced to sow his root crops a second time because of the ravages of the flea beetle.

But this is only part of the Hawthorndale story. The same laboratories have evolved an efficient technique—again based on BHC—for the control of wireworm. Wireworm can cause complete ruin to a cereal crop, and before the days of BHC there was no answer to this menace other than to hope that the crows and seagulls would peck the diminutive worms from the soil.

Hawthorndale has also helped to provide the farmer with seed dressings effective against the spores of such diseases as bunt and smut. Last but not least, Hawthorndale has discovered in BHC the most effective means yet available of destroying the malarial mosquito with its toll of human health and life; and of destroying the locust with its toll of food losses.

# Chrysanthemum Growing

By Lawrence Ashford (Leathercloth Division)

Second only to the rose in popularity, the chrysanthemum offers a peculiar challenge to the skill of the grower: by means of disbudding the number, size and even the date of the blooms can be controlled. This delicate art of "stopping" can become a pastime of exceeding fascination, and some of its secrets are here explained.

Colour photographs by John Markham

PROBABLY the oldest flower grown by man is the chrysanthemum. It was cultivated as long ago as the fourth century B.C., but it only became really popular in the early nineteenth century. Today it is undoubtedly second only to the rose in public favour, and its popularity, especially among amateurs, is increasing yearly.

No town of any size is without its chrysanthemum society, the members being drawn from all walks of life. There are now over a thousand specialist societies throughout the country, with a total membership of approximately 100,000 enthusiasts. Competition at their local shows is usually very keen.

Do not be misled into thinking that the chrysanthemum is solely a flower for the expert. It is one of the most obliging of plants, for neglect it as you may, it will produce something for you. Indeed, the chrysanthemum can be induced to flower as wanted by means of stopping, an operation which is by no means as complicated as it sounds.

There are various types of chrysanthemums, ranging from the large exhibition or Japanese varieties with the gigantic blooms associated with the November shows to the dainty Pompoms and Koreans, which are plants for every garden. The enthusiast with a greenhouse may concentrate on the mid-season and late flowering types usually called decoratives, which bloom from October to late January according to variety. Many of these will bloom satisfactorily without fire heat. Suitable ones are Balcombe Flame, a vivid orange-red with large reflexed blooms; Crensa, rose-cerise tipped buff; the pure white Monument; and Imperial Pink, rose-pink with reflexing petals. Those specially suited to exhibition work are usually marked in the catalogue.

Outdoor types comprise the popular early-

flowering doubles, which include many varieties suitable for exhibition such as Empire Primrose, the magnificent Migoli, a rich golden-yellow bloom, and Mayford Pink, bright rose with a gold centre. The Koreans are extra hardy and are mainly single flowers. One of the best is the blood-red Cardinal, which stands up remarkably well to adverse weather conditions. The Pompom varieties with large double rounded flowers are also very popular.



PERFECTION, a decorative chrysanthemum grown for border display and generally allowed to develop freely without disbudding



Having made up your mind what varieties to grow, what then? Place an order with a nurseryman, who will always be ready with friendly advice, and rooted cuttings will be sent towards the end of April or early May. They should be ready for immediate planting in the open at intervals of eighteen inches—in the case of earlies where they are to flower, and for

growing point, so causing the plant to produce side shoots or "breaks." By restricting the number of breaks we can control the approximate date when the plant comes into flower. Before describing the technique of stopping it is necessary to explain what happens if the cutting is left to its own devices.

After a few weeks a flower bud (known as a break bud) will appear at the top of the main stem, thereby preventing any further upward growth. Side growths are, however, produced at the leaf joints below the bud, each of which in time ends in another flower bud (known as the first crown bud). The process is again repeated, resulting a few weeks later in a further set of flower buds (known as second crown buds). A final set of side growths then appears. These terminate in clusters of flower buds (known as terminal buds).

No further development except the opening of flowers takes place. Only if small flowers in sprays are required is the plant allowed to grow unchecked, as for example with some Koreans and the Rubellum varieties.

To obtain a single large bloom it is necessary to prevent the side growths developing. Consequently they may be removed entirely, when about half an inch long, with a sideways movement of finger and thumb. This would leave only our first bud (the break bud) to develop into a flower.

In practice, however, this break bud produces a short-stemmed bloom of indifferent quality. It is usually the first or second crown buds that are taken to flower. By "taking" or "securing" is meant the decision to allow that particular bud or buds to produce a flower, all side growths and unwanted buds being

pinched out as they appear. By restricting the number of side growths arising after the break bud and the formation of the first crown buds we can grow on one, two or three or more shoots to flowering, just as the fancy takes us. The largest blooms are, of course, obtained when one shoot only is grown.

From the foregoing it will be seen that, left to its own devices, the plant, like our railways, has a time-table of sorts. By the process known as stopping it is possible to make some adjustments to the natural time-table, and so produce flowers at the time required for exhibition or for any other purpose.

Instead of permitting our cutting to grow naturally until it forms the break bud, it is stopped some time before. The



JANTE WELLS, a very popular and reasonably hardy yellow Pompom of compact bushy habit. Widely used for window-boxes, especially in London.

the lates in any fairly open sunny spot, preferably in rows, two feet six inches apart.

Any fairly good soil will do, adding a little old manure, compost, leaf-mould or a handful of bonemeal. Insert a good straight stick or cane some three feet long at planting time and fasten the plant loosely to this as it grows. Watering is only necessary in exceptionally dry weather and must then be really thorough. Regular sprayings with any insecticide containing BHC (benzene hexachloride) will tackle pests such as leaf miner.

Stopping is a headache to many amateurs. This operation is much easier to demonstrate in the garden or greenhouse than to explain in cold print. Briefly, it consists of removing the



DAPHNE, a single pink Korean of exceptional beauty. Like all Koreans, it is useful for cold exposed gardens.





RAYONNANTE, a distinctive lilac pink variety with thread-like petals. Will stand only a small amount of frost.

growing point of the plant (the first two or three very small leaves at the tip) is removed, usually by nipping off between the thumb and the first finger. The effect is to stop the upward growth and force the plant to produce side growths (usually two, but sometimes three), one or more of which may be retained. If second crown blooms are required, these side growths may again be stopped and further side shoots allowed to develop, the buds on these being taken to flower.

It will be apparent that by stopping at particular times of the year it is possible to control the growth of the plant and to persuade it to bloom almost to the very day required, provided factors such as weather, soil, feeding and position are taken into consideration.

The grower has at his command more than one means of accelerating or delaying the actual blooming (for example by feeding or delaying the removal of side shoots) which enable him to have the flower exactly right on the date of the show. The approximate times to stop and the buds to take for any particular variety can be obtained from stopping tables. An

intending exhibitor should ask his nurseryman for stopping data when new varieties are purchased. This information is often given in chrysanthemum catalogues.

For the rank and file, to whom timing is relatively unimportant, stop when the plants are six to seven inches high (or about mid May) and allow only two side growths to develop and flower on these. If bushy plants carrying a larger number of small flowers are required, stop the side growths again during June (early varieties—early June; late varieties—late June) and grow on to second crown buds. If you have several plants of one variety, and the fancy takes you, try out various stopping times and methods.

Remember always that the urge to grow is strong in the chrysanthemum, and when the bud or buds of your choice have been taken you will find side growths appearing all down the stems and perhaps new growth from the ground. This growth should all be removed to direct the energy of the plant into building up a good bloom.

What happens when the last bloom is cut and only the "stools" remain? The Koreans and Rubellum varieties may stand the winter months outside, and I have seen some of the other types which have produced enough growth from which to take cuttings after a winter in the open. It is better, however, if you are able, to replant several selected stools in a frame or greenhouse or, if the plants have been flowered inside, to leave the healthiest there.

It is important to propagate only from healthy stock. New growth will soon appear from the ground. Cuttings may be taken from November until April (the earliest

where exhibition blooms are required) by severing the new shoots below the ground. They should be two to three inches long, sturdy and healthy-looking. Never take cuttings from growth arising from the old stem.

Trim the cutting with a sharp knife just below a joint, remove one or two lower leaves and insert to a depth of about an inch in light soil (preferably sandy) in pots, boxes or directly in the soil of the frame or greenhouse. Ventilate whenever weather permits. By the end of March, cuttings will be growing freely and should be exposed gradually to the outside air whenever conditions permit, ready for planting out at the end of April or May.

Much has been omitted from this article, but there are many excellent books by both amateur and professional growers. I hope I have convinced you that the chrysanthemum is not just a specialist's flower. With the necessary care and attention it can be grown to perfection by the really keen amateur, while for all of us it can bring the thrill of producing something of beauty when the dark days of autumn and winter begin.

# I.C.I. NEWS

## SIR VICTOR WARREN

WE regret to announce the death on 3rd March of Sir Victor Dunn Warren, M.B.E., T.D., Regional manager for Scotland and Northern Ireland and lately Lord Provost of Glasgow.

*Mr. E. M. Fraser, Sales Controller, writes:*

It is difficult to grasp the fact that Victor Warren is dead. He was so vivid, and possessed so strong a constitution, that it seemed likely he would long outlive his contemporaries, leaving behind a great record of service to the Company and the country. Though long connected with I.C.I., he was for only a short time on its staff; but after he entered I.C.I.'s service he quickly attracted the affection of everybody in touch with him. He was so loyal, so doughty a fighter. When once his support was engaged on any issue he would plunge joyfully into the battle, and stayed there, laying about him, till the issue was decided. If he won, he left no soreness behind him; if he lost, he felt none.

As well as a great fighter he was a great laugh. He found life enjoyable, and said so. The daily incidents of work and play made him laugh; and to point the occasion he had a vast fund of anecdote which was brought into play as circumstances demanded, often with great effect. And there was no conventional nonsense about never laughing at his own jokes. Out would come the anecdote: and then, as soon as he heard his audience laugh, back went his head and he laughed too, half because he enjoyed his own stories and half because he enjoyed his audience's laughter. Just a fortnight before he died he sent from his sick-bed on St. Valentine's day a gay rhymed valentine to a conference he was prevented by illness from attending.

Into his fifty years he crammed more experience and achievement than most men do in the normal span.

He was educated at Kelvinside Academy and Rossall, and on leaving school went into the family business, Hunter and Warren, one of Nobel's explosives agents. He was elected for the Park Ward of Glasgow before he was thirty, and became vice-chairman of the Progressive Party in Glasgow in 1935. During the war he commanded the 15th (Scottish) Divisional Signals and served abroad, mainly in Africa. He was awarded the M.B.E. (Military Division) in 1939 and the Territorial Decoration in 1941.

In 1946 he returned from the war, became chairman of the Progressive Party, and contested unsuccessfully a parliamentary division. In 1948 he joined the staff of the Scotland and Northern Ireland Region, on the absorption of his family firm into the selling organisation of I.C.I. In April 1949 he became assistant Regional manager and was appointed Regional manager in July. In May of the same year he became Lord Provost of Glasgow and Lieutenant of the county. He was the first Conservative Lord Provost for fifteen years—which in itself demanded vigour and courage. In the

lesser sphere of Regional manager he showed the same traits. And his courage was displayed in the highest degree when he gallantly earned the Albert Medal for saving life in 1949. In 1952 he was appointed Civil Defence Controller for the West of Scotland.

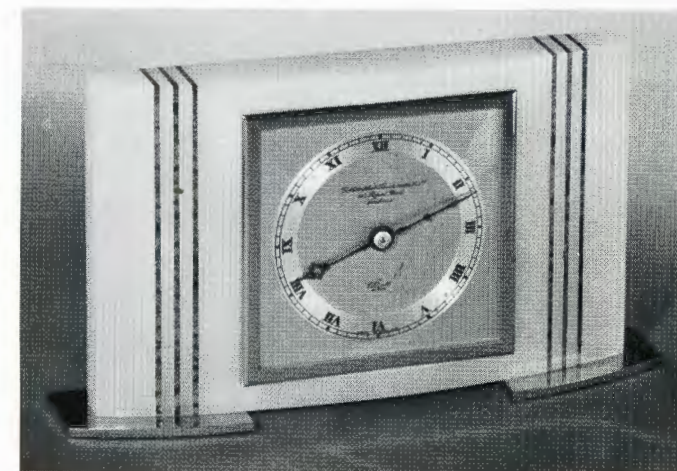
It seemed, when his time as Lord Provost expired, that a choice of careers lay before him. But the accumulated effort had proved too much even for his constitution. In 1952 his doctors and friends attempted to make him take things quietly—but he was driven by his own spirit, and when forced to lie up, ran the affairs of his Region and Civil Defence from his bed. Increasing ill health, however, overcame him early in this year—yet only shortly before his death he insisted against all advice in making a Civil Defence broadcast for the B.B.C. from his nursing home. But then his malady defeated him, and he died after a grievous operation.

We are all of us the poorer for his death; and our sympathy goes warmly to his widow, his son, and the other members of his family.

## New Alternative for 40-year Service Award

At the last Central Council is was suggested that a more modern clock should be made available as a 40 years' service award, since the present chiming clock was too large to be accommodated on many present-day mantelpieces. The Chairman agreed to the suggestion, and the new clock is now available as an alternative to the larger clock or the silver salver.

The case, of white onyx with vertical inlays of green malachite and chromium bezel and feet, measures 5 in. in height, 8 in. in width and 2½ in. in depth. It has been found



The new 40-year service award



impracticable with this depth of clock to include in the movement either strike or chime.

New Retirement Certificate

A new certificate for presentation to workers and staff on retirement after 20 years' service or more comes into use this month. It replaces the illuminated certificate instituted in 1948.

The new certificate was designed by Mr. Henry Rushbury, R.A., Keeper of the Royal Academy, and lithographed in full colour at The Kynoch Press. The design incorporates many



Mr. Henry Rushbury at work on a preliminary design for the new retirement certificate

suggestions from I.C.I. Divisions. Framed in the decorated border are portraits of six pioneers of the chemical industry who were the pioneers also of I.C.I. prosperity: Lord McGowan, Lord Melchett, Ludwig Mond, Alfred Nobel, Sir William Perkin and James Muspratt. At the top, figures representing Labour and Science join hands over the I.C.I. roundel.

Within this frame are printed the words:

CERTIFICATE  
PRESENTED TO  
(Name)  
ON RETIREMENT  
by the  
CHAIRMAN AND DIRECTORS  
OF IMPERIAL CHEMICAL  
INDUSTRIES LIMITED  
TO RECORD  
THEIR APPRECIATION OF  
(years of service)  
VALUED SERVICE  
WITH THE COMPANY

Chairman

Year of Retirement

The recipient's name, length of service and year of retirement will be inscribed by hand.

I.C.I. Rifle League—Interim Results

All four divisions of the I.C.I. Rifle League have now shot off at least half their matches, and in Division I only one round remains to be shot. Until the complete league results can be published members of the competing clubs may be interested to see how the various Divisions are faring.

Here are the states of the Divisions at the dates given:

DIVISION 1							
Round 5. 4th February, 1953							
		Shot	W.	L.	D.	Pts.	Agg.
1. Kynoch A .. ..	..	5	4	1	0	8	2473
2. Billingham A .. ..	..	5	3	2	0	6	2462
3. Ardeer A .. ..	..	5	2	3	0	4	2438
4. Chance and Hunt A ..	..	5	1	4	0	2	2420

DIVISION 2							
Round 5. 28th January, 1953							
		Shot	W.	L.	D.	Pts.	Agg.
1. Kynoch B .. ..	..	4	3	1	0	6	1956
2. Castner-Kellner .. ..	..	4	2	2	0	4	1946
3. Nylon A .. ..	..	4	2	2	0	4	1944
4. Billingham B .. ..	..	4	2	2	0	4	1841
5. Ardeer B .. ..	..	4	1	3	0	2	1911

DIVISION 3							
Round 5. 28th January, 1953							
		Shot	W.	L.	D.	Pts.	Agg.
1. Kynoch C .. ..	..	5	5	0	0	10	2382
2. C/E Dept., Runcorn ..	..	5	4	1	0	8	2344
3. Nylon B .. ..	..	5	2	3	0	4	2341
4. Chance and Hunt B ..	..	5	2	3	0	4	2333
5. The Frythe, Welwyn ..	..	5	1	0	4	2	2224
6. Millhouse .. ..	..	5	1	0	4	2	2072

DIVISION 4							
Round 6. 28th January, 1953							
		Shot	W.	L.	D.	Pts.	Agg.
1. Nylon C .. ..	..	6	6	0	0	12	2733
2. Sheffield Office .. ..	..	6	4	2	0	8	2260
3. Dowlais .. ..	..	6	3	3	0	6	2655
4. Bradford Area Office ..	..	6	3	3	0	6	2168
5. Salt Works, Weston Point ..	..	6	2	4	0	4	2553
6. Middlesbrough .. ..	..	6	2	4	0	4	2521
7. Nobel (Glasgow) .. ..	..	6	1	5	0	2	1224

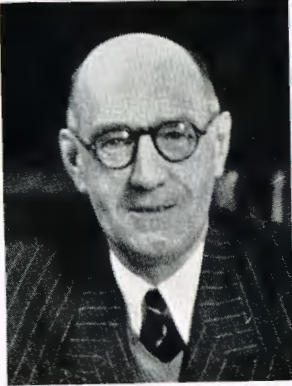
ALKALI DIVISION

New Joint Managing Directors

The Alkali Division has two new joint managing directors. They are Mr. J. W. Gibb and Mr. E. J. Langford, both of whom have been Division directors since 1945.

The two new joint managing directors are chemists, Mr. Gibb a graduate of Edinburgh University and Mr. Langford of Oxford, and they have both been with the firm since the 1920's. After early experience in the Research Department and on the works they specialised on the commercial side of the Alkali Division's work.

Of Mr. Gibb's 30 years with the firm, three periods totalling several years have been spent



Mr. J. W. Gibb

in the Far East, chiefly in China. During the war he was seconded to the Ministry of Supply and was appointed to the British Purchasing Commission in Washington, where

he helped to procure chemicals for Britain under Lend-Lease. Since the war he has paid visits to the United States, Mexico and Canada.

Mr. Langford spent most of the 1930's in London as head of the Export Section of the Alkali Sales Control under Mr. E. Wallace before returning to Winnington in 1941. He has travelled widely in the service of the firm: in addition to many journeys on the Continent he has visited Kenya, India, South Africa, Egypt, Canada and the United States.



Mr. E. J. Langford

Soccer Achievements

I.C.I. (Alkali) Football Club have had a fine record so far this season. In the F.A. Amateur Cup they have done particularly well since the competition began in September. A start was made in the preliminary round of the qualifying competition, when they beat Harrowby (away) 6-0. In the following three qualifying rounds they beat in turn Earle (away) 4-1, Northern Nomads (home) 4-2 and St. Anne's Athletic (away) 3-1. Thus they became one of the twenty-four district winners in the country. In the fourth qualifying round they drew against Norton Woodseats (away) 3-3, but in the replay at home they won 2-0. This brought them to the first round of the competition proper, when they played Ferryhill Athletic (away) and beat them 2-1.

On 23rd January the second round of the F.A. Amateur Cup was played with thirty-two teams left in the competition. I.C.I. (Alkali)'s opponents were Leytonstone F.C., one of the most famous amateur clubs in Britain: in addition to being the winners of the F.A. Amateur Cup in 1948 this club has been champion of the Isthmian League five times since 1946-7, including the past three seasons. In spite of a miserably wet day a large crowd gathered at the Moss Farm sports ground to watch I.C.I. battle against these formidable adversaries. It was a grand game, played in the very best spirit. Leytonstone won by 3 goals to 2, although the I.C.I. team had, in the beginning, appeared to be the attacking side and had actually scored the first goal.

The previous nineteen games played by I.C.I. (Alkali) had all been victories for them, and they have done well in other competitions this season. In the semi-final of the Cheshire Amateur Cup, which they have won the previous two seasons, they defeated Lostock Gralam, a strongly fancied team, by 5 goals to 2. They will meet Norley United in the final. I.C.I. (Alkali) also reached the first round proper of the Cheshire Senior Cup, when they met the all-professional team Stalybridge Celtic. At Stalybridge they drew 3-3, but in the replay at Winnington they were defeated 2-1. In the second round of the Northwich and District Challenge Cup they defeated Nantwich 8-2, a victory that brings them to the semi-final of that competition, and in the mid-Cheshire League Challenge Cup they are still undefeated.

BILLINGHAM DIVISION

Mr. G. A. Wilson appointed Nobel Labour Manager

The appointment of Mr. George Wilson, Billingham Division deputy labour manager, as Nobel Division labour manager is a noteworthy new landmark in a career that began at the age of 15.

Mr. Wilson was that age when he joined the Supply Department at Billingham in 1925. Nine years later he was transferred to Labour Department as assistant safety officer. In 1938 he was made assistant to the labour manager, and in 1945 deputy Division labour manager.

He is known at Billingham as a sympathetic and popular labour officer and a man unstinting with his off-duty time.

He has always taken a prominent part in the affairs of the Synthonia Club; he was honorary general secretary from 1937 to 1942 and chairman from 1944 to 1946. The Scout movement at Billingham has been another of his great interests, and for many years he was group president of the Synthonia Scouts and chairman of the Billingham District Scouts Association. A week of his annual holidays has often been spent in camp with the Synthonia Scouts.

With all these claims on his time Mr. Wilson has yet found opportunities to build up a reputation as a handyman who delights in gadgets and tinkering in his workshop. As one friend puts it: "If you mention to George that you consider knocking a hole through a wall in your house, he'll be round the next weekend with a power drill and an armful of tools to do the job for you!"



Mr. George Wilson

This Pigeon travels by Bus

Susie the pigeon has learned a lot since she was picked up as a frightened little bundle of feathers in the Ammonia Synthesis Plant at Heysham last summer. It was then that



Susie the pigeon lends Peter Loftus a claw at the piano



she became the pet of Mr. James Loftus, a Synthesis Section process worker.

She has grown into a tame and knowing bird. Mr. Loftus, who feeds her by hand on rice and peas, taught her to fly by taking her outside each day and coaxing her to fly back to the house.

Although Susie is a family favourite, she is the special pet of 11-year-old Peter Loftus. She flies after him when he goes to school, and, to the delight of his fellow choirboys, follows him to church and flits about the vestry. On other days she will fly after Mr. and Mrs. Loftus when they walk to a nearby bus stop. With Mr. Loftus's mother she visits the shops, strutting along the pavement and hopping into the basket from time to time. Susie has even followed Peter on to a bus and gone with him to Heysham Village and back. And when Peter is practising the piano she hops on to the keys and lends a hand—or perhaps one should say a claw.

## DYESTUFFS DIVISION

### Girl Guide to attend Coronation

Miss Helen Hunter, a tracer in the Division Engineering Department at the Grangemouth Works of Dyestuffs Division, has been chosen to represent the Girl Guides of the Commonwealth at the Coronation, with the enviable privilege of a seat in Westminster Abbey on 2nd June.



Miss Helen Hunter

Miss Hunter, who is 22 years of age, is a Scot and lives in Polmont; she is captain of the 2nd Polmont Girl Guide Company and has been a member of the movement since 1943. She joined Division Engineering Department at Grangemouth Works three years ago.

The Earl Marshal's department decreed that there should

be two representatives of the Girl Guides of the Commonwealth at the Coronation, and that one should be a Guider and the other a Guide. The names of all the Commonwealth countries were listed, and lots were drawn. The happy result was that a Canadian girl will represent the Guides and Miss Hunter will represent the Guiders of the Commonwealth.

## GENERAL CHEMICALS DIVISION

### Mr. D. H. Carter

Successor to Mr. Beeby (whose appointment as Salt Division chairman is reported on page 123) as Division joint managing director is Mr. D. H. Carter, who is, of course, well known to us, for he has been with the Division nearly six years, firstly as head of Sales Control and later as commercial director. He has had a wide and varied experience in I.C.I.

He joined the firm in 1928, and his first three years with the Company were spent at Billingham on research work and as a process engineer. He then spent eighteen months as works engineer with Steatite and Porcelain Products Ltd., returned to Billingham for a few months and then moved to Fertilizer Sales in London. This move started his career on the com-

mercial side, for after five years in that department he went on to the Southern Region as an assistant to the chemical sales manager. After service in the army throughout the war he returned to Southern Region for two years as assistant to the plastics sales manager before coming to the General Chemicals Division in 1947. In 1952 he was appointed to the board of Plant Protection Ltd., with whom General Chemicals Division have many interests in common.

We congratulate Mr. Carter on his new appointment.



Mr. D. H. Carter

### Sixty-four and still going Strong

One of the outstanding sporting personalities of the Division is Mr. Jack Finlay of Cassel Works electric shop, who at 64 years of age is as fit and sprightly as most men forty years his junior.

"Old Fin," as he is known to his colleagues, is a race walker of repute, and at the present moment is the holder of the A. Morgan silver cup, a trophy open to all professional walkers for annual competition. He won this prize in a handicap race over a distance of ten miles. In 1950 he won the Coxhoe Frost silver bowl. He is as keen as ever on the sport and is ready to challenge any man of his own age in the world over any distance up to twenty miles.



Reward for a ten-mile walk: Mr. Finlay (centre) after winning the A. Morgan Cup

Mr. Finlay, who has seven children and ten grandchildren, attributes his superb physical fitness to hard work in his youth and moderate living. Before coming to I.C.I. he had spent most of his life on laborious work as a "rougner" in the steel mills of Middlesbrough, and this, together with temperate habits and non-smoking, have helped to extend his athletic life. He is a great believer in the benefits of massage and says he does not intend to retire from competition before reaching the age of 100.

During his athletic career he has won over a hundred races and has competed against some of the best men in the world, including Tom Payne, Tommy Green, and George Larner of Australia, who held the world's one-mile walking championship. Among his many achievements on the track and road are the championship of Darlington Harriers in 1929, and a local record time of 6 min. 45 sec. for a one-mile race set up at Shildon flower show and sports in 1921.

### Women First-aiders win Trophy

Works first aid competitions are no rarity; but there are probably very few in which women's teams compete on equal terms with men's, and even fewer in which the ladies beat the men.

The Research Department of General Chemicals Division musters several first aid teams, which for the past three years



The victorious ladies of the Research Department first aid team with their trainer

have competed among themselves for the Barton Shield. A workers' team won it the first time; last year a staff men's team was successful; and this year a staff ladies' team won the shield in competition with workers, staff men and another staff ladies' team.

Last year this same team was beaten by only two points by the St. John Ambulance Brigade team, which is the champion ladies' team of the north-west and which represents the area in London competitions.

## METALS DIVISION

### Mr. T. G. Austin

Mr. T. G. Austin, Metals Division personnel manager, was appointed to the Metals Division board and delegate boards of Marston Excelsior Ltd. and Lightning Fasteners Ltd. on 12th February. Mr. Austin joined the Ammunition Sales Department at Nobel House in 1929 and moved to Witton a year later. The next nine years were also devoted to the Division's ammunition interests, and in 1939 Mr. Austin

became personal assistant to the Division chairman. In 1944 he moved over to the personnel organisation as Division labour manager, and his appointment as Division personnel manager came in 1951.

### Mr. J. T. Smith

Not every engineer, even when he reaches the position of a Division director in charge of engineering, can claim to have begun and ended his I.C.I. career with the establishment of a great new building. But this unique achievement did in fact mark the career of Mr. J. T. Smith, who retired from the Company's service on 31st January.



Mr. J. T. Smith

Mr. Smith's early days as an engineer were spent in the North of England, and in 1922 he joined Synthetic Ammonia and Nitrates Ltd. Until he was transferred to Head Office in 1932 Mr. Smith was a member of the engineering team responsible for designing and building the production unit now known as I.C.I. Billingham Division. In 1940 he moved to Birmingham as assistant chief engineer of the Metals Division, taking charge of the department six years later. He was appointed to the Division board in 1949.

One of the last major engineering feats to be carried out under Mr. Smith's direction was the establishment of the new engineering block at Witton. This building, which was formally opened on the day Mr. Smith retired, houses under one roof most of the engineering sections formerly scattered over many areas at Division headquarters.

A colleague on the Division board has summed up Mr. Smith's contribution to Metals Division history in these words:

"During his twelve years in the Metals Division J. T. Smith has made many friends, not only for himself but for the Engineering Department of which he was in charge. In fact the present status of the department and the first-class relations which it enjoys throughout the Division are largely due to his leadership and warmth of personality.

"It is difficult to single out the qualities which have made him so well loved by those who worked both with him and for him, but they amount to a combination of humour, generosity, and an understanding of people which is perhaps best described as humanity. His was not the popularity of the easy-going boss, for he was never afraid to make an unpopular decision; and those who at times did not agree with him can have felt nothing but respect for his integrity and the sincerity of his arguments.

"Those of us who knew him well will miss his wisdom as a colleague but will look forward to enjoying his friendship for many years to come."

### Family Affair

Mr. Harold Barnhurst, for many years senior foreman of the Old Rolling Mill, Kynoch Works and a well-known figure at Witton, retired recently. Mr. Barnhurst, who was a member



of the Rolling Mill personnel for 33 years, belongs to a family with a long history of service at Kynoch Works. His father worked there for 38 years, two of his brothers are still with the firm, and no fewer than four other brothers and one sister have also been employed. The third generation has been represented by Mr. Barnhurst's daughter and one of his sons.

A keen footballer in his youth, Harold Barnhurst played in goal for the Kynoch team and later acted for a time as their trainer. In recent years he has enjoyed the quieter sports of bowls and fishing. One of his hopes for retirement is that it will give him the opportunity of travelling about the country, a pastime of which he never tires.

### Travelling Light

Since anything connected with railways is a source of delight to a surprising number of people, Metals Division is particularly interested in one of the most recent applications of its aluminium alloy products.

On 19th January a complete train of aluminium alloy rolling stock went into service on the London Transport District line.



London Transport's new all-aluminium train

Since last March individual cars of aluminium alloy construction have been running on that line; recent delivery of cars with driving-cab positions has now permitted the formation of a complete eight-car train. All the aluminium alloy sheet and extrusions used in building the train were supplied to the locomotive builders by I.C.I. Metals Division, who also collaborated in the design of the stock.

The principal advantage of substituting aluminium alloy for the traditional steel is, of course, the saving in weight—an important point in a vehicle so dependent on frequent halts and accelerations. The new train is in fact 16% lighter than a comparable steel train, and considerable interest will naturally be focused on the results achieved in service.

### NOBEL DIVISION

#### Hot Stuff, these Peppers!

A record of 200 years' service in the blackpowder trade is probably unique. But in the Pepper family they do not expect to stop there. Mr. Fred Pepper, B.E.M., who has just retired at Ardeer, leaves his son Ronnie to carry on the blackpowder

tradition that was started by his own great-grandfather and has continued in an unbroken line through his grandfather and father.

Mr. Pepper senior started work at the Curtis's and Harvey blackpowder factory at Faversham in 1904. When Faversham was closed down in 1935 he went to Ardeer, where his inherited knowledge and own long experience were invaluable in starting up the new blackpowder department. He retired as foreman, after contributing 48 years' service to the Pepper tradition.

Mr. Pepper represented the Faversham workers in the Works Council Scheme from the time of its inception until the factory closed down. He was awarded his B.E.M. for sterling rescue work after an explosion there.



Mr. Fred Pepper

### Ardeer Inventor brings Boon to Fathers

When very young boys and girls take to the bottle, life for their parents can be very disturbed. Some greedy babies have a habit of losing their grip on the bottle, gulping at it and sucking in air instead of milk. Such deviations from advised practice cause disturbances and recourse to teaspoonfuls of some elixir or other recommended by the more experienced parents of the locality.



Baby feeds while father reads: Mr. Forlin's invention in use

Such problems are nearly universal, and many a father left with baby for an evening has been reduced to distraction in his efforts to relieve the unexpected ache and pain. Holding babies upside down and patting their backs does not always bring the expected result and relief. The howls can go on as the floor is measured out in agitated steps.

Mr. Emlyn Forlin, superintendent in the Acids Department of Ardeer, did not like this kind of experience. His problem was watching baby and reading at the same time. Too often the bottle slipped and baby was dismayed. The family was holidaymaking in Belfast at the time, and on hearing her

husband's complaint Mrs. Forlin challenged him to do something about it.

And that is just what Mr. Forlin did. He already had an idea, and searched Belfast for the components to make the Stay-Put Feeder. The device was patented by Mrs. Forlin and is now being made for sale to other distracted parents.

A screw device clamps the feeder to cot, pram, playpen or chair, and attached to the clamp is a length of tubing which can be bent to stay in any position. At the end of the tubing is a holding device which takes the bottle. Thus the bottle can be fixed to "stay put" in exactly the right position. Baby gulps no wind, and father has no night marching.

Listeners to the B.B.C.'s "Scotch Corner" in mid-January heard the benefactor broadcast on the birth of the idea. And already several of Mr. Forlin's friends in South Wales are trying out the gadget, with happy results.

### PLASTICS DIVISION

#### Largest-ever 'Perspex' Block

A little more than a year ago the largest block of 'Perspex' ever made was handed over to Dr. Arthur Fleischmann, the well-known sculptor who specialises in this medium. Now the title of "largest block" has passed to an even more massive piece of 'Perspex,' and this too has been made to the order of Dr. Fleischmann.



Foreman R. Shaw with the biggest-ever 'Perspex' block

The new block weighs 664 lb. and is 13 in. thick, 15 in. wide, and nearly 6 ft. tall. It was made at the Britannia Mill, Darwen, and Dr. Fleischmann is delighted with the craftsmanship that has gone into it.

He intends to carve from it a figure slightly larger than life size, which he hopes will be used as a decorative feature in one of the great ocean-going liners. He estimates that the work will take him about a year to complete.

### SALT DIVISION

#### A New Division Chairman

Last month the Division welcomed a new chairman in succession to Mr. C. R. Prichard; he is Mr. G. H. Beeby, lately joint managing director of General Chemicals Division.

Mr. Beeby joined I.C.I. in 1929 as a research chemist at Billingham, but after four years his desire to know what the firm's products are used for and who buys them made him seek a transfer to the Sales Organisation.

It would be difficult to match his experience with this side of the Company's activities, for after serving in various capacities in sales offices at Bradford, Liverpool, York and Newcastle he joined the London Sales Office in 1944 as joint deputy Regional manager.

The following year he went to General Chemicals Division as director in charge of commercial activities, a post which he held for two and a half years until becoming joint managing director of the Division in 1948. He has also been for some years a director of Thorium Ltd. and of British Titan Products Ltd.

In the seven and a half years that he was with General Chemicals Mr. Beeby deputised on more than one occasion for the Division chairman at the Division Council. He has also been the member of the Division board responsible for Civil Defence training, and it has been under his guidance that the training of the efficient Civil Defence teams has taken place.



Mr. G. H. Beeby

### 'TERYLENE' COUNCIL

#### A Mansion pleasantly Situate

The 'Terylene' Council, whose headquarters at the moment is at Welwyn, will be moving in the course of the next eighteen months to new quarters in Harrogate, Yorks.

The new accommodation will be centred on an eighteenth-century mansion known as Crimble House, and offices and laboratories to house the members of the 'Terylene' Council staff are now being erected in the surrounding estate. The move will take the 'Terylene' Council nearer both to the I.C.I. 'Terylene' plants at Hillhouse and Wilton and to the Yorkshire and Lancashire textile districts where much of the yarn and fibre is processed.

Crimble House was used as a private residence until it was bought by I.C.I. Grainge, the Harrogate historian, describes it as "a mansion pleasantly situate on an eminence overlooking the valley of the Crimble" and as having been first occupied by John Bainbridge, who in 1789 was appointed a commissioner for the completion of the enclosure of the Forest of Knaresborough.



The 'Terylene' Council's new headquarters in Harrogate



## THE REGIONS

## Southern Region Flood Victim

A thorough soaking is no new experience for Mr. R. A. Duffield of the Southern Region Paints Department: during the war the destroyer in which he was serving in the Mediterranean was torpedoed and he spent an oily two hours in the sea before being picked up. But he rates as equally unpleasant his ordeal in the Canvey Island floods of February, when a ladder left by chance leading up to his loft saved his life.

Mr. Duffield says: "I was wakened at about three o'clock on the Sunday morning by a tremendous crash. I got out into the hall and could see in the moonlight that the front

door, which had been locked, had burst open. Water was pouring in and was swirling through the hall about two feet deep.

"By pure chance I had been doing some decorating the previous day and had left the ladder up to the loft still in position. That ladder saved us. By the time I had collected my wife and got back into the hall the furniture was floating round all over the place and the water was chest high. We got up into the loft soaked through and frozen. We had to stay there for the rest of the night until we were taken off by my brother next morning in a canvas boat."

## The Field-Marshal Backs a Loser

Tyneside was honoured recently by a visit from Field-Marshal Lord Montgomery of Alamein. During his stay Field-Marshal Montgomery inspected units of the Cadet Force and the Territorial Army, in which the Newcastle Area Office was represented by no fewer than three officers: Lieut. P. F. Skelton and Second Lieut. T. Tugman of the Cadet Force, and Lieut. R. I. Lindsell of the Territorial Army.



Field-Marshal Montgomery passes Lieut. Tugman during his inspection of Tyneside cadet and Territorial units

Lieutenants Skelton and Tugman are both in the 5th Cadet Battalion of the Royal Northumberland Fusiliers. Lieut. Skelton, who was a schoolmaster before he joined I.C.I., is the battalion musketry officer and runs the newly formed rifle club in the Newcastle office. Lieut. Tugman, who is the son of the Alkali Division safety officer, served his period of National Service as a lance-corporal in the Royal Marine Commandos before joining I.C.I. two years ago. He plays rugby for the Northern Rugby Club.

Lieut. Lindsell belongs to the 272nd (Northumbrian) Field Regt., R.A., of the Territorial Army, which has a permanent strength of 30 officers and 300 men. He spent his two years' National Service in the 2nd Regiment of the Royal Horse Artillery.

During his visit to Tyneside Field-Marshal Montgomery made two important prognostications: (a) That Portsmouth would make an early exit from the F.A. Cup Competition, and (b) that Newcastle United, who carried his blessing, would go a long way.

It seems that even a Field-Marshal can be wrong!

\* \* \*

## BINDING OF 1952 "MAGAZINES"

As in previous years, The Kynoch Press have agreed to bind the 1952 *Magazines* for those members of the Company who would like this done. The cost of 12s. 6d. per volume includes the provision of an index for 1952, which is now being prepared. Inserts can be bound with the *Magazines*, but these—together with the set of *Magazines*—must be provided by the person placing the order.

All those requiring their *Magazines* to be bound are asked to tell their *Magazine* correspondent now. The work of printing the indexes and preparing the binding cases must be started soon, and it will not be possible to accept orders later in the year.

## OUR NEXT ISSUE

Graham Hutton, the well-known economist and broadcaster, leads the May issue with an article on the report of the productivity team which visited America to study heavy chemicals. This report is of particular interest to I.C.I., as its leader was Mr. Grange Moore, recently deputy works manager of Pilkington-Sullivan Works and now second-in-command of the Work Study Section at Head Office.

Our colour feature is based on an attractive collection of old prints illustrating the beginning of the steam age a hundred or more years ago. These prints convey something of the excitement caused in those days by the advent of steam propulsion. They depict the early steam locomotives, the first ocean-going steamer, the first use of steam power in mills, and even a steam coach and a steam aeroplane. Commander Basil Lavis, R.N.V.R., writes the text.

Next comes an authoritative article on the future of athletics in Britain from the pen of Mr. H. Whittle of Dyestuffs Division, who captained the British Olympics team at Helsinki last year. His article discusses the handicaps under which athletics are labouring in this country and suggests what can be done to improve matters. Lastly, Mr. A. H. Merrie of Central Labour Department writes a neat little story about a spot of domestic trouble.



## TAGS AND TIES

By Ronald Farquharson (I.C.I. Shipping Manager)

Illustrated by Peter Rees-Roberts

ONE is ever apt to come across things in the United States which, while appearing normal to Americans themselves, may startle the visiting Englishman. No doubt the same applies in reverse: afternoon tea at the rectory, for instance, might well prove something of a novelty to the average Texan.

The more virile atmosphere of the Chicago World Fair in 1934 left several lasting impressions on my mind. There was the American conception of "The English Scene" which included a Beefeater chewing gum; and "The Streets of Paris" which was in effect no more than an *exposé* of strip-tease. I saw sufficient of that as seemed good for me, and, after a restorative ride on the big dipper, passed on to the comparative calm of a stall where brisk business was being transacted in luggage labels.

I paused to witness the selection made by an obvious native of Illinois who appeared to be the type that only once in his life might venture beyond the shores of Lake Michigan, and that undoubtedly would be on his honeymoon trip to Niagara Falls. In return for \$2.50 he was able to pose (before those of even lower mentality) as one who in his time had sojourned at the Savoy, London; the Adlon, Berlin; the Beau Rivage, Lugano; the Mena House, Cairo; the Waldorf-Astoria, New York; and the Imperial, Tokyo; there may have been one or two more—I cannot recall—but I do remember speculating as to whether he possessed a sufficiently becoming piece of baggage upon which to attach such an impressive array of luxury surroundings. Or possibly he had in mind the idea of sticking them somewhere else—in an album, for instance, or on the walls of his bedchamber. One often wonders why that



type of American wants certain things to which he is not strictly entitled—and what he does with them afterwards.

On a more recent trip to America I entered a department store just off Lexington Avenue and discovered a counter entirely devoted to neckwear. Three-quarters of the display seized me with a quite unholy terror; well it might, since everyone knows how our transatlantic friends harbour no inhibitions when it comes to the matter of ties. But what held me fascinated was the more sombre aspect of the other exhibits. They hung in serried rows under a display card which bore the unbelievable legend "What-ho, Chaps! The British Regimentals."

And there, indeed, most of them were. Infantry of the line were normally selling at four dollars each, while the Household Cavalry and the Brigade of Guards bore a premium of fifty cents extra. For some reason, which I could only deduce as arising from popular demand, the Black Watch was priced at five dollars. What really rather shocked me was the type of individual I saw actually engaged in buying these sacrosanct and privileged pieces of haberdashery for their own adornment.

Although it is true that Madam Chiang Kai-shek's nephew served for a brief period during the last war as a major in the Scots Guards, I found it hard to credit the fact that the Household Cavalry had ever harboured the two ebony gentlemen who were festooning themselves with the insignia of such hallowed traditions, in the belief, no doubt, that it would add glamour to their vacation from the cotton-fields of Kentucky. But since, of course, one can never be quite certain about such things, I felt on safer ground in supposing that the salesgirl, displaying a nice combination of publicity and regimental impartiality above her jumper, was never educated at Harrow.

Whichever way one looks at it, this question of ties is invariably a knotty problem, even in this country. Perhaps it is not generally known that stripes without the added distinction of an emblem cannot be registered.

For instance, if I.C.I. were to design a tie on the doubtful supposition that many thousands among its faithful employees would immediately become walking advertisements for the Company, they could not avoid the risk of plagiarism in a design which merely embraced say pink and off-white stripes against a broad background of 'Monastal' blue. Oh, no! in order to preserve it as insignia of the closed-shop order it would be necessary to incorporate into the design something symbolically appropriate, such as—well, say a carboy of acid or, more simply, perhaps, the numeral 25—indicating the day of the month on which one might hope to be in a position to pay for it.

So it would appear that there is no more than an unwritten law which decrees that I, for instance, should not deck myself out sartorially as a Wykehamist, a "Savage," or a riding member of the Wobbleton Wheelers. As it is, I have troubles enough when I don the ties to which I *am* entitled. *Par exemple*, I seldom sport the distinctive stripes of my old school without being greeted in the street by complete strangers as another sailing enthusiast from West Kirby or, alternatively, welcomed as a newcomer among the supporters of Liverpool Marine Football Club. When I explain—as the case may be—either that sailing is much too hazardous a sport to be

numbered among my hobbies or that at my school we played the other kind of football, I am usually rewarded by such strangers with that look which is a mingling of scorn and suspicion.

In the case of my regimental tie, which I flaunt on occasions with equal pride, it has been rather different: this is because, while there is not another *exactly* like it, there are several which differ but marginally.

Thus it happened that a fellow guest at an overcrowded cocktail party took a quick glance at the colours of the 22nd Foot, then slapped me on the shoulder and shouted "Snap!" In that prevailing light and atmosphere he did indeed appear to be wearing a tie of the same distinctive colours and design. Oddly enough, we immediately accepted each other as old comrades without any discussions as to particular battalions or regimental personalities; we were only at variance as to whether his tie was of finer quality than mine.

Then the inevitable jolly-good-sport-of-a-female roped herself into the argument and advanced the opinion that, although the other chap's was better woven, mine was of fresher vintage. On her suggestion we settled the matter immediately by exchanging neckwear. Then I quickly moved away, grateful for the fact that at long last I had succeeded in getting rid of that greasy spot of "canteen" which was apt to show just above the waistcoat.

Being proud of the bargain, I wore the tie again next day, and the first thing which I received was a particularly cordial and respectful salutation from my old friend the much beribboned Commissionaire:

"I never knew you were one of us, sir," he said.

"I hope I am," I replied with that vague nine-in-the-morning shortness, and let the matter pass.

Then I went to the club at lunchtime, where the full light of day was more selective as to the difference between dark green and black than had been apparent in the artificial illumination of the night before. I was soon approached, scrutinised and then reproached by a distinguished member who had served in that great corps whose gallants were immortalised by Kipling as being "a kind of giddy harumfrodite—soldier an' sailor too."

"I say, old boy, you shouldn't wear that tie, should you?"

"Why not? I..." Then I looked closely at the one he was wearing and realised both the subtle difference and the disturbing fact that I was masquerading as a Royal Marine. Of course, I tried to explain how it had happened; but the old boy persisted in regarding the incident as being quite devoid of humour. So I lost no time in going out and buying another 22nd Foot, and I subsequently appeased the Commissionaire by giving him the other tie to wear at weekends. Despite it,



*A fellow guest at an overcrowded cocktail party slapped me on the shoulder and shouted "Snap!"*

both ex-"harumfrodites" probably still continue to think of me as being more than slightly bogus.

On another occasion there was the inevitable man in the pub who withdrew his mottled features from the business end of a tankard and then remarked "I see you was in the Scruffies."

Though I always regard the application of that term to the 22nd Foot as outdated as it is outrageous, I nodded assent.

"I was in the Scruffies too, fourteen to eighteen. Sergeant in the Fifth." As that was my battalion I bought him another pint and we settled down to a discussion of people and places. Then I noticed it. Glancing upwards from the level of his ox-blooded shoes along the length of his blue suit which shone like polished steel, I took note of his neckwear, which above its mooring of an ornate kind of brooch affair was pulled out into the shape of a jug handle.

"Why," I enquired, "if you were a sergeant in the Cheshires, do you wear that tie?"

He drew in his chin to regard the jug handle.

"Cos me missus give it me last birthday," he said in all innocence. "But between you an' me I'd rather 'ave a Scruffy one."

So we had another pint apiece, exchanged ties, and disappeared out of each other's lives.

To this day it is still a mystery to my son as to exactly how the tie of which he is most proud came to be surreptitiously duplicated. It just seemed quite inappropriate to me that an ex-sergeant of the gallant "Scruffies" should—however unwittingly—desert his regiment, sartorially speaking, in favour of the Brigade of Guards.

But, after all, what does it matter to the multitude—by which I embrace the world at large? If one likes a label, or is taken by a tie, why should one be deterred from entering into such possession in a free market? There is no law that says "Thou shalt not." It is only, I suppose, that some of us have strong proprietary feelings, while others are afraid of some sudden embarrassment. I suffer both ways.

None the less, several times I have toyed with the idea of developing a clipped accent, donning an Old Etonian tie, sticking "Ritz-Carlton" on my best suitcase and disappearing behind the Iron Curtain. It is a purely personal supposition, but I imagine that I should soon be in the company of one or two equally bogus types on the other side.





*Parish Church, Kendal*

*Photo by A. Walker (Billingham Division)*